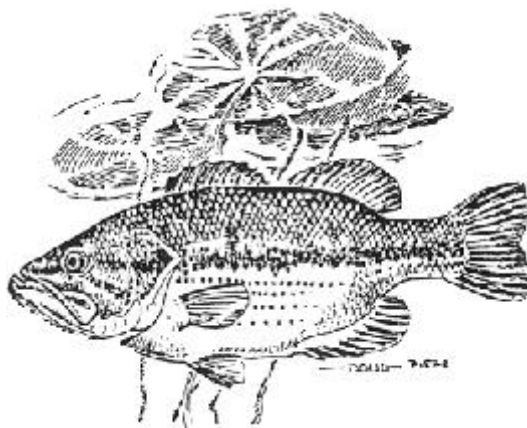


PATOKA LAKE

2001 Fish Management Report

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PATOKA LAKE

Dubois, Orange, and Crawford Counties

Fish Management Report
2001

INTRODUCTION

Patoka Lake is an 8,800 acre flood control impoundment in south-central Indiana located in Dubois, Orange, and Crawford Counties (Figure 1). The reservoir was created in 1977 when a dam was completed across the Patoka River 13 miles east of Jasper. The Indiana Department of Natural Resources (IDNR) operates four State Recreation Areas at the lake. The Newton-Stewart State Recreation Area is the most developed with campgrounds, swimming beach, visitors center, marina, and other attractions. Eleven boat launching ramps provide anglers and boaters access to the lake. Areas for bank fishing are numerous and are located by any road bordering the lake.

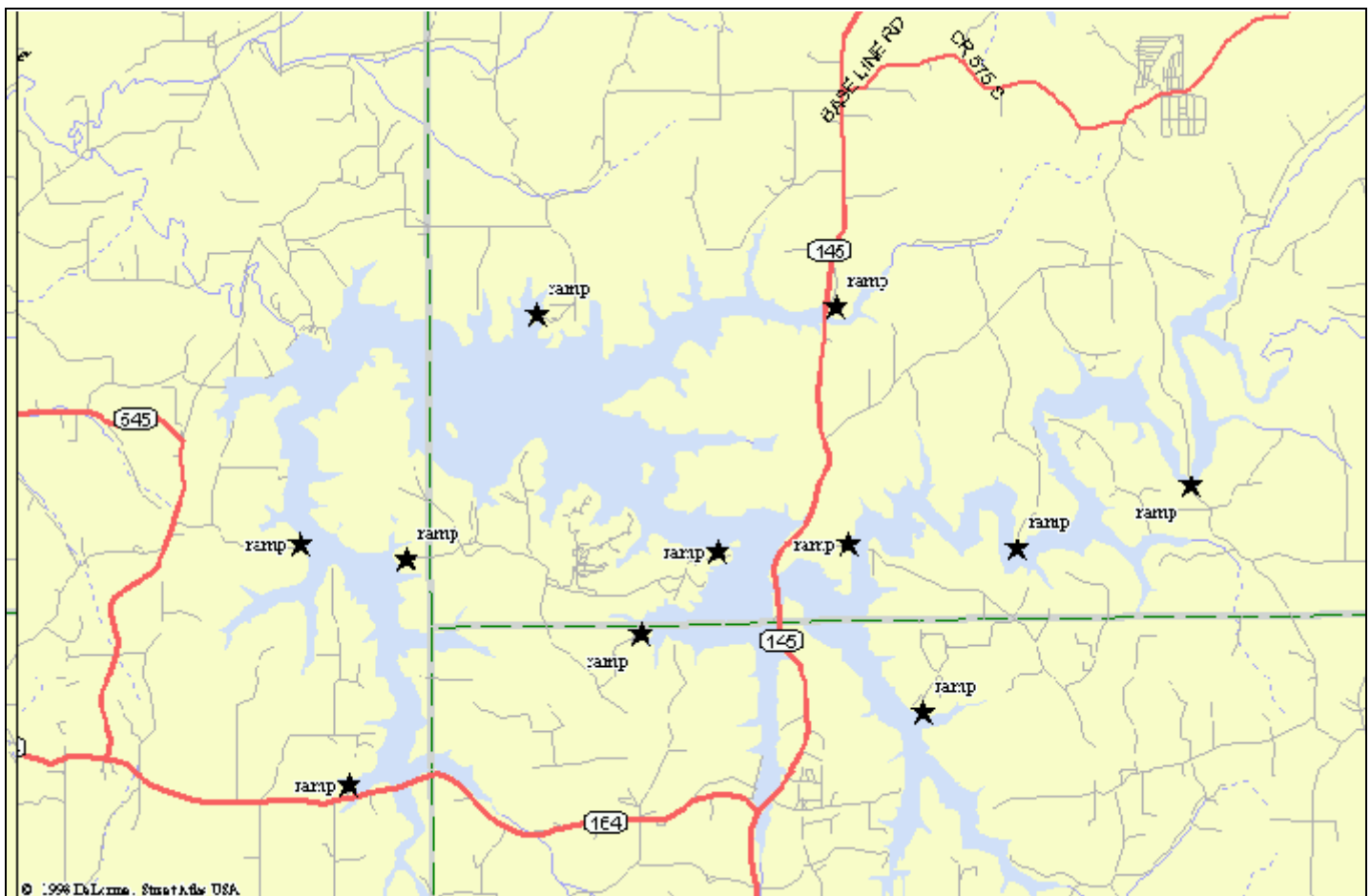


Figure 1. Map of Patoka Lake.

Patoka Lake is a multiple use resource and providing quality sport fishing has always been an important objective. A fish eradication project was initiated to remove problem fish such as, carp and gizzard shad, from the watershed prior to the initial restocking of the lake with sport fish. The lake has always been managed for largemouth bass and panfish angling. Largemouth bass were protected by a 14-inch minimum length limit through 1988. A 12 to 15 inch bass slot size limit was enacted in May 1989 to reduce the number of overabundant small bass. The slot limit was changed to a 15-inch minimum length limit in August 1996 to halt subslot size bass harvest as bass numbers were adequately reduced through the slot limit. This regulation was also timely due to gizzard shad being found in the lake for the first time in June 1996 (Stefanavage 1997).

The 2001 fisheries management survey, bass tournament monitoring, and striped bass fall indexing were conducted under Division of Fish and Wildlife (DFW) work plan 98739. Work plan objectives are: 1) manage Patoka Lake to annually provide about 37,000 angler days of largemouth bass fishing, 33,000 days of bluegill/redear sunfish fishing, 15,000 days of crappie fishing, and 6,000 days of catfish fishing with an angler satisfaction rate of 63%; 2) evaluate the 1997 stocking of surplus striped bass; and 3) increase the spring largemouth bass tournament catch rate of bass longer than 15 inches to at least 0.05 bass per hour.

Patoka Lake standard fisheries management surveys were conducted in 1981, 1983, 1984, 1987, 1989, 1991, 1994, 1996, 1998, and 2000 (Ball and Glander 1985, Glander 1988, Stefanavage 1991 and 1993a, Stefanavage and Carnahan 1995, Stefanavage 1997, Carnahan 1999 and 2001). Electrofishing fisheries surveys were conducted in 1995, 1997, and 1999 (Stefanavage 1996, Carnahan 1998 and 2000). A largemouth bass research study was conducted during 1985 and 1986 (Ball 1988). Creel surveys were conducted in 1981, 1982, 1985, 1986, 1989, 1991, 1994, 1996, and 2000 (Glander 1983 and 1984, Brown 1987a, 1987b, Stefanavage 1991 and 1993b, Stefanavage and Carnahan 1995, Stefanavage 1997, Carnahan 2001). Largemouth bass tournament monitoring surveys were conducted in 1985, 1986, and 1990 through 2000 (Blackwell 1993 and 1994, Carnahan 1993, 1998, 1999, 2000, and 2001, Stefanavage and Carnahan 1995, Stefanavage 1995, 1996, and 1997).

METHODS

FISHERIES MANAGEMENT SURVEY

The survey was conducted from May 6 through May 23, 2001. The lake was divided into eight basins, each roughly 1,100 acres in size. Four of the basins were selected randomly and each received one hour of pulsed D.C. night electrofishing for a total electrofishing effort of four hours. Electrofishing was further broken down into 15 minute stations to representatively sample different types of habitat, such as, wood, rip rap, aquatic vegetation, and relatively open shorelines. Two individuals collected fish stunned by the electrofisher.

Fish collected were measured to the nearest 0.1 inch in total length. Scale samples were taken

from a subsample of the sport fish for age and growth determination. Fish weights were determined from the 1999 spot check fisheries management survey.

Proportional stock density (PSD) is a length-frequency index which is used to assess the size structure of Patoka Lake's largemouth bass, bluegill, and redear sunfish populations (Anderson 1980 and Gabelhouse 1984). PSD is the percentage of quality size fish within a group of stock size fish. Stock size for largemouth bass and bluegill is 8 and 3 inches, while quality size is 12 and 6 inches respectively. Populations dominated by small fish have low PSD values, while populations dominated by large fish have high PSD values.

Relative stock density (RSD) is also a length-frequency index used to calculate the percentage of fish from a designated length group out of the total number of stock size fish. The designated lengths used for Patoka Lake largemouth bass are 14 and 15 inches, which is referred to as RSD14 and RSD15. This essentially is the percentage of bass that are longer than 14 and 15 inches divided by the total number of stock size bass. RSD lengths used for Patoka Lake bluegill are 7 and 8 inches which is referred as RSD7 and RSD8. PSD and RSD indices are based on fish caught only by electrofishing.

LARGEMOUTH BASS TOURNAMENT MONITORING SURVEY

Organizations conducting tournaments were asked to measure their own bass. They were provided with a measuring board, plastic washtub, and data sheets. Data sheet information included hours fished, number of participants, weight of big bass, and bass lengths to the nearest 0.1 inch. Data was then mailed to the district fisheries office.

STRIPED BASS FALL INDEXING SURVEY

Two hours of pulsed D.C. night electrofishing were conducted on October 2, 2001. All sampling was conducted in the Newton-Stewart Basin. Electrofishing was further broken down into randomly selected 15 minute stations. One dipper collected fish stunned by the electrofishing boat. All striped and white bass were measured to the nearest 0.1 inch.

RESULTS

FISHERIES MANAGEMENT SURVEY

Twenty fish species were sampled. The total catch was 9,457 fish which weighed 1,822.94 pounds (Appendix). Gizzard shad were most abundant by number followed by bluegill, longear sunfish, largemouth bass, and steelcolor shiner. Gizzard shad were most dominant by weight followed by largemouth bass, common carp, and spotted sucker.

Gizzard shad

Gizzard shad were first discovered in Patoka Lake by DFW personnel in 1996. A total of four gizzard shad were collected in 1996. Sampling in 1997 showed the gizzard shad population exploded in one year. With less than half the fish collection effort in 1997 as in 1996, 3,301 shad were sampled that weighed 358.75 pounds. Gizzard shad have been the most abundant fish sampled by both number and weight since 1997.

In 2001, 5,602 gizzard shad were sampled that weighed 811.22 pounds, and they ranged in length from 5.5 to 11.8 inches. Shad accounted for 59% of the sample by number and 45% by weight (Table 1). Shad relative abundances increased 9% by number and 7% by weight from 2000, and their electrofishing catch rate more than doubled from 2000 to 2001. Gizzard shad electrofishing catch rates in 1997, 1998, 1999, 2000, and 2001 were 825, 637, 732, 581, and 1,401 per hour respectively.

Table 1. Percent relative abundance by number and weight of selected species from Patoka Lake, 1984 - 2001.

Year	SPECIES PERCENT RELATIVE ABUNDANCE BY NUMBER AND (WEIGHT)								
	Gizzard shad No. (lbs)	Bluegill No. (lbs)	Largemouth bass No. (lbs)	Longear sunfish No. (lbs)	Redear sunfish No. (lbs)	Steelcolor shiner No. (lbs)	Channel catfish No. (lbs)	White crappie No. (lbs)	Other species No. (lbs)
1984	0	54 (24)	24 (54)	10 (6)	5 (6)	0	0 (0)	* (*)	7 (10)
1987**	0	21 (7)	49 (37)	2 (*)	15 (11)	2 (*)	0 (0)	* (*)	10 (45)
1989	0	32 (9)	47 (41)	4 (1)	9 (7)	2 (*)	0 (0)	0 (0)	7 (41)
1991**	0	28 (14)	17 (30)	19 (5)	10 (12)	15 (1)	* (2)	2 (*)	9 (35)
1994**	0	39 (17)	17 (21)	17 (6)	5 (8)	14 (*)	* (3)	* (*)	9 (46)
1996**	* (*)	46 (20)	18 (30)	16 (4)	4 (6)	2 (*)	* (4)	* (*)	13 (37)
1997	58 (36)	20 (7)	9 (27)	7 (3)	1 (2)	1 (*)	* (*)	* (*)	3 (24)
1998**	46 (32)	21 (7)	9 (30)	10 (3)	1 (2)	4 (*)	* (3)	2 (2)	7 (21)
1999	50 (38)	16 (4)	9 (34)	21 (5)	1 (2)	* (*)	* (3)	* (*)	3 (14)
2000**	46 (26)	21 (4)	9 (25)	12 (2)	1 (1)	1 (*)	2 (9)	4 (2)	4 (31)
2001	59 (46)	13 (4)	8 (33)	13 (3)	1 (1)	4 (1)	* (1)	* (*)	2 (12)

* Less than 1%.

** Electrofishing, gill nets, and trap nets used, other wise electrofishing only.

Bluegill

A total of 1,218 bluegill was sampled which weighed 76.52 pounds. The bluegill ranged in length from 1.6 to 7.0 inches. Bluegill ranked second in relative abundance by number (13%) and fifth by weight (4%) (Table 1). The bluegill electrofishing catch rate was 305 per hour. Catch rates in 1996 through 2000 were 431, 278, 232, 239, and 270 per hour respectively (Figure 2). The increase in the bluegill electrofishing catch rate from 2000 to 2001 was from the 3.0 to 5.9 inch size class (Table 2).

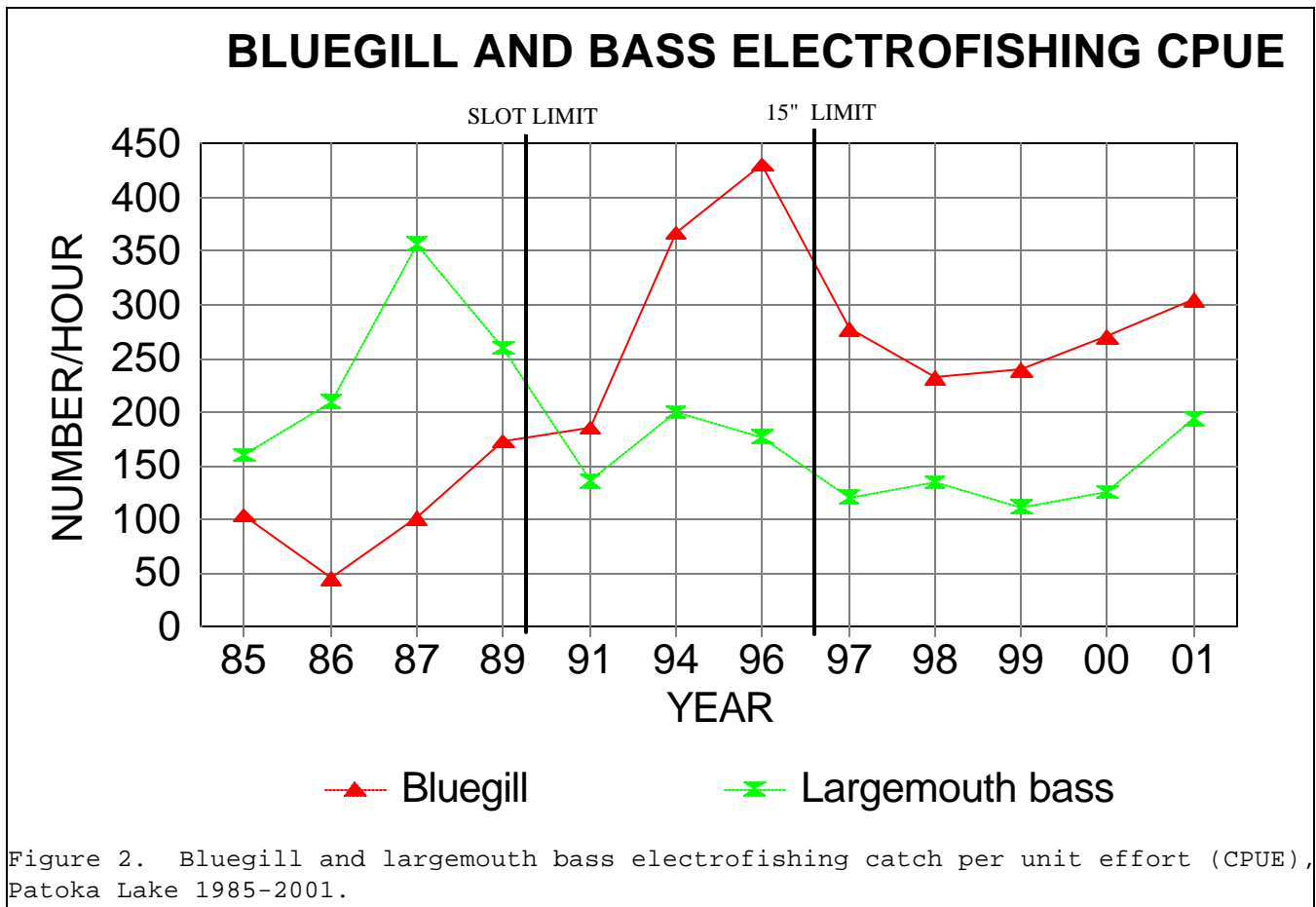


Table 2. Bluegill electrofishing catch per hour, Patoka Lake 1986 -2001.

BLUEGILL ELECTROFISHING CATCH PER HOUR					
Year	<u><=2.9</u> <u>inches</u>	<u>3.0 - 5.9</u> <u>inches</u>	<u>6.0 - 7.9</u> <u>inches</u>	<u>>=8.0</u> <u>inches</u>	Total
1986	0	17	28	0	45
1987	45	16	39	1	101
1989	31	87	44	11	173
1991	28	123	30	5	186
1994	172	160	28	7	367
1996	144	238	42	7	431
1997	86	164	26	2	278
1998	80	138	13	1	232
1999	83	142	13	0	238
2000	62	198	10	<1	270
2001	32	254	19	0	305

Bluegill PSD's have been on a decreasing trend since 1987 until 2001. Since 1987, PSD's have declined from a lake high of 71 to 5 in 2000. In 2001, the bluegill PSD increased to 7 (Figure 3). A PSD of 7 indicates that the bluegill population is comprised mostly of fish less than 6 inches in length. Bluegill RSD index values have decreased substantially since 1996. Bluegill RSD7 values from 1996 to 2001 were 9, 5, 3, 3, 1, and less than 1. RSD8 values were 2 and 1 in 1996 and 1997, and 0 the last four years. These decreases in RSD values represent a dramatic decrease in the number of larger bluegill from 1996 to 2001.

Bluegill growth in 2001 was at the low end of the average range when compared to the district averages (Table 3). Bluegill growth rates in 2001, when compared to 2000 growth rates, have remained the same for ages 1 and 2 bluegill, and decreased by at least a half inch for ages 3 through 5.

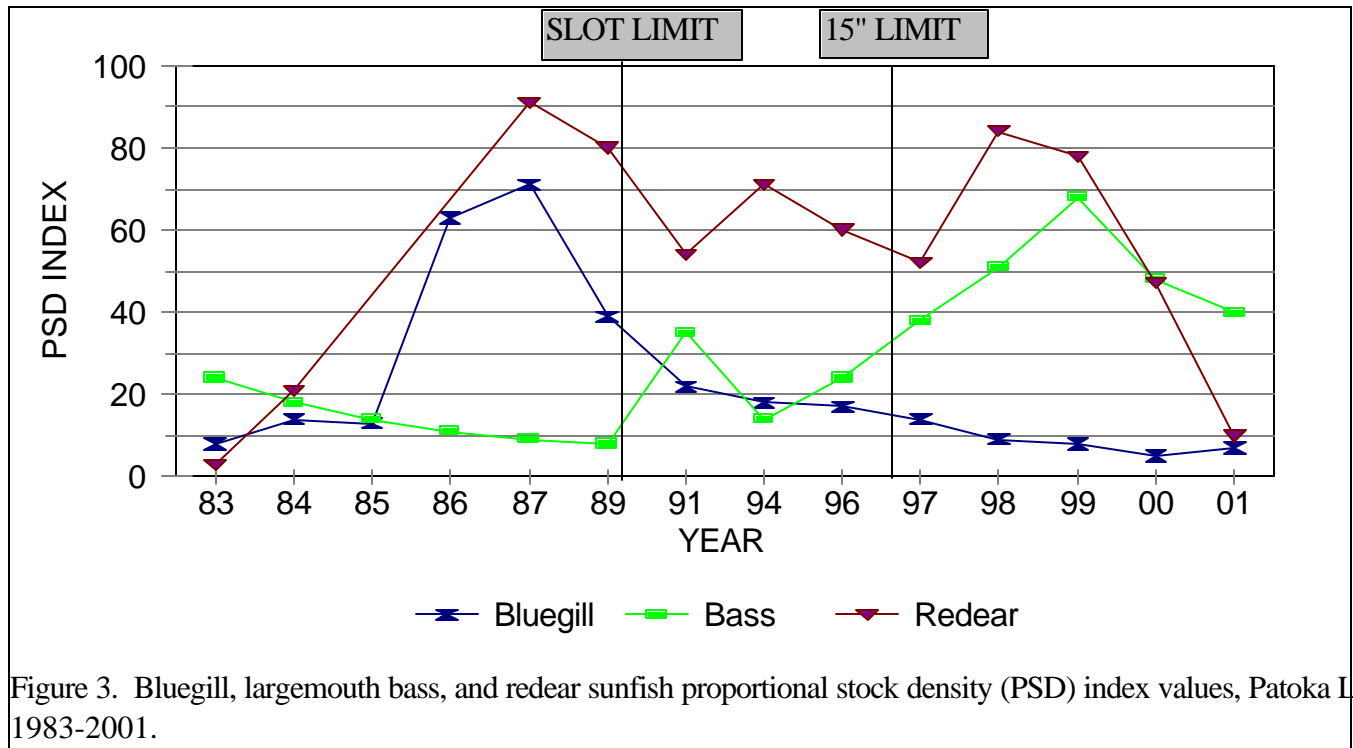


Figure 3. Bluegill, largemouth bass, and redear sunfish proportional stock density (PSD) index values, Patoka Lake 1983-2001.

Longear sunfish

A total of 1,190 longear sunfish was sampled that weighed 57.61 pounds. They were third in abundance by number (13%) and sixth by weight (3%), and ranged from 1.9 to 5.3 inches in length. Longear relative abundances in 2000 were similar to 2001 results. Longear sunfish electrofishing catch rates from 1997 to 2001 were 105, 152, 300, 173, and 298 per hour respectively.

Table 3. Bluegill average back calculated lengths (inches), Patoka Lake 1984-2001

<u>Year</u>	<u>BLUEGILL AGE (years)</u>					
	<u>One</u>	<u>Two</u>	<u>Three</u>	<u>Four</u>	<u>Five</u>	<u>Six</u>
1984	2.4	3.7	5.1	6.4		
1987	2.5	3.7	5.2	6.1	7.0	7.7
1989	2.2	4.0	6.0	7.2	7.9	8.5
1991	1.7	3.5	6.0	7.4	8.2	8.6
1994	1.6	3.6	6.3	8.0	8.6	9.1
1995	1.6	3.5	6.2	7.6	8.4	
1996	1.8	4.0	6.8	8.0	8.8	
1997	1.7	4.0	5.9	7.1	7.7	
1998	1.6	3.3	5.3	6.7	7.5	8.2
1999	1.6	3.2	4.9	6.4		
2000	1.8	3.2	5.1	6.4	7.3	
2001	1.8	3.5	4.7	5.6	6.3	
District avg.	1.7	3.3	4.8	6.1	6.9	7.6

Largemouth bass

The 776 largemouth bass sampled weighed 607.17 pounds which accounted for 8% of the collection by number and 33% by weight. Relative abundances in 2000 were 9% by number and 25% by weight. They ranged in length from 4.1 to 19.4 inches. The 2001 electrofishing catch rate was 194 per hour which was the highest recorded since 1994. Electrofishing catch rates in 1997, 1998, 1999, and 2000 were 121, 145, 133, and 126 per hour respectively (Figure 2). Catch rates by length class decreased by 18 per hour for bass between 3 and 7.9 inches and increased by 57 for bass between 8 and 11.9 inches (Table 4). The 12 to 14.9 inch and 15 to 19.9 inch size classes increased by 11 and 20 per hour respectively. The 15 to 19.9 inch size class possessed a catch rate of 31 per hour. This is an impressive catch rate considering the next highest catch rate since 1985 for this size group was 11 per hour in 2000. No bass larger than 20 inches were sampled. Bass growth was similar to last year and was either above the district average or at the high end of the average range for southwest Indiana (Table 5). Growth should be exceptional for larger bass that can effectively prey on gizzard shad.

The proportion of larger bass in Patoka's bass population decreased from 2000 to 2001. This was documented by the bass PSD index values (Figure 3). The PSD in 2001 was 40. The decrease was due to the increased catch of 8 to 12 inch bass. A PSD of 40 is a good indicator of a well balanced bass population. Even though the PSD value decreased, the overall number of bass longer than 15 inches in the fishery has increased as indicated by the electrofishing catch rates. Bass PSD values in 1996, 1997, 1998, 1999, and 2000 were 24, 38, 51, 68 and 48 respectively.

Table 4. Largemouth bass electrofishing catch per hour, Patoka Lake 1985-2001.

LARGEMOUTH BASS ELECTROFISHING CATCH PER HOUR						
	3.0 - 7.9	8.0 - 11.9	12.0 - 14.9	15.0 - 19.9	>=20.0	
<u>Year</u>	<u>inches</u>	<u>inches</u>	<u>inches</u>	<u>inches</u>	<u>inches</u>	<u>Total</u>
1985	37	105	14	3	<1	159
1986	67	128	10	4	1	210
1987	166	174	13	4	<1	357
1989	55	196	8	<1	1	260
1991*	62	111	46	4	<1	223
1991	51	55	28	2	0	136
1994*	125	144	16	3	<1	288
1994	110	77	10	2	<1	199
1996	84	71	18	4	<1	177
1997	23	62	32	4	0	121
1998	38	56	38	6	0	138
1999	28	27	48	8	1	112
2000	38	45	30	11	<1	124
2001	20	102	41	31	0	194

* Spring collection where bass was the only species collected.

Table 5. Largemouth bass average back calculated lengths (inches), Patoka Lake 1984-2001.

<u>Year</u>	<u>LARGEMOUTH BASS AGE (years)</u>						
	<u>One</u>	<u>Two</u>	<u>Three</u>	<u>Four</u>	<u>Five</u>	<u>Six</u>	<u>Seven</u>
1984	4.4	8.1	11.1	14.2	16.5		
1987	4.4	7.8	10.6	12.7	14.7	16.7	
1989	5.0	8.4	11.0	12.6	13.6		
1991	5.2	8.8	11.5	13.7	15.3	16.3	
1994	5.1	9.1	12.2	14.4	16.0	17.4	
1995	5.1	9.1	11.9	14.4	16.4		
1996	5.7	9.6	12.9	14.9	17.0	18.9	
1997	5.0	8.9	11.6	13.7	15.2	16.8	
1998	4.9	8.9	11.4	13.5	15.2	16.2	
1999	4.1	7.5	10.5	13.2	15.0	15.9	
2000	5.4	9.5	12.5	14.8	16.5	17.9	19.4
2001	5.1	9.3	12.1	14.3	15.9	17.2	18.2
District avg.	4.2	7.6	10.2	12.1	13.7	15.9	16.9

Bass RSD14 and 15 values have been on an increasing trend since 1997. However, they may now be stabilizing since the RSD14 value decreased in 2001. RSD14 values were 9, 12, 26, 27, and 23 from 1997 through 2001. RSD15 values from 1997 through 2001 were 4, 7, 11, 13, and 16 respectively. These index values indicate that bass fishing for “keeper” size fish should be excellent.

Redear sunfish

A total of 70 redear sunfish was sampled which weighed 12.24 pounds. Redear ranged in length from 2.3 to 7.8 inches. They accounted for 1% of the collection by number and weight. The electrofishing catch rate was 18 per hour, which was slightly higher than 1999 and 2000 results.

The redear sunfish PSD value was 10. PSD values from 1997 through 2000 were 52, 84, 78, and 47 respectively (Figure 3). The RSD8 index values for 1998 through 2001 were 69, 74, 31, and 0. This was the first survey that no redear sunfish longer than 8 inches were sampled.

Redear back calculated growth rates decreased from 2000 levels by nearly an inch for ages 3 and 4 (Table 6). Growth rates were average for ages 1 and 2, and at the low end of the average range for ages 3 and 4. No age 5 redear were sampled.

Table 6. Redear sunfish average back calculated lengths (inches), Patoka Lake 1983-2001.

<u>Year</u>	<u>REDEAR SUNFISH AGE (years)</u>					
	<u>One</u>	<u>Two</u>	<u>Three</u>	<u>Four</u>	<u>Five</u>	<u>Six</u>
1983	2.4	4.2	5.8	7.1		
1987	2.1	3.8	5.3	6.6	7.5	8.2
1989	2.0	4.6	6.7	7.9	8.6	8.9
1991	1.9	4.7	6.9	8.0	8.6	9.0
1994	2.1	4.6	6.9	8.2	8.9	9.5
1995	1.9	4.5	6.8	8.6	9.8	10.3
1996	1.9	4.3	6.7	8.0	9.0	9.7
1997	1.7	4.1	5.7	6.8	7.7	
1998	1.9	4.1	6.0	7.4	8.4	9.2
1999	2.0	4.4	6.6	7.9	8.6	9.3
2000	2.0	4.2	6.1	7.4	8.1	8.6
2001	2.2	4.2	5.3	6.4		
District avg.	2.0	4.5	6.3	7.5	8.5	9.3

Other Fish Species

Fifteen species comprised the remainder of the sample. Collectively, they accounted for 6% of the collection by number and 14% by weight (Appendix). Steelcolor shiner, spotted sucker, warmouth and bluntnose minnow were the four most abundant "other fish" species sampled by number while common carp accounted for most of the weight.

Steelcolor shiner and bluntnose minnow electrofishing catch rates were 89 and 7 per hour respectively. Steelcolor shiner electrofishing catch rates from 1996 through 2000 were 23, 23, 65, 13, and 18 per hour respectively. The bluntnose minnow electrofishing catch rate has been as high as 41 per hour (1998).

Other game fish species sampled were 11 white crappie, 10 smallmouth bass, 6 channel catfish, 3 black crappie, and 1 striped bass. The white crappie electrofishing catch rate decreased from 5 per hour in 2000 to 3 in 2001. The smallmouth bass ranged in length from 7.8 to 12.5 inches and their

growth rates were similar to 2000 results (Appendix). The channel catfish ranged in length from 18.6 to 25.5 inches. The single striped bass measured 19.8 inches and weighed 4.33 pounds.

LARGEMOUTH BASS TOURNAMENT MONITORING SURVEY

Thirteen bass tournaments were monitored in 2001 (Table 7). Eight were in the spring (March through May), three during the summer (June through August), and two in the fall (September). Two tournaments elected not to participate in the project. A total of 2,305 anglers fished in the reporting tournaments. This was the first year that summer fishing tournaments were permitted on Patoka Lake.

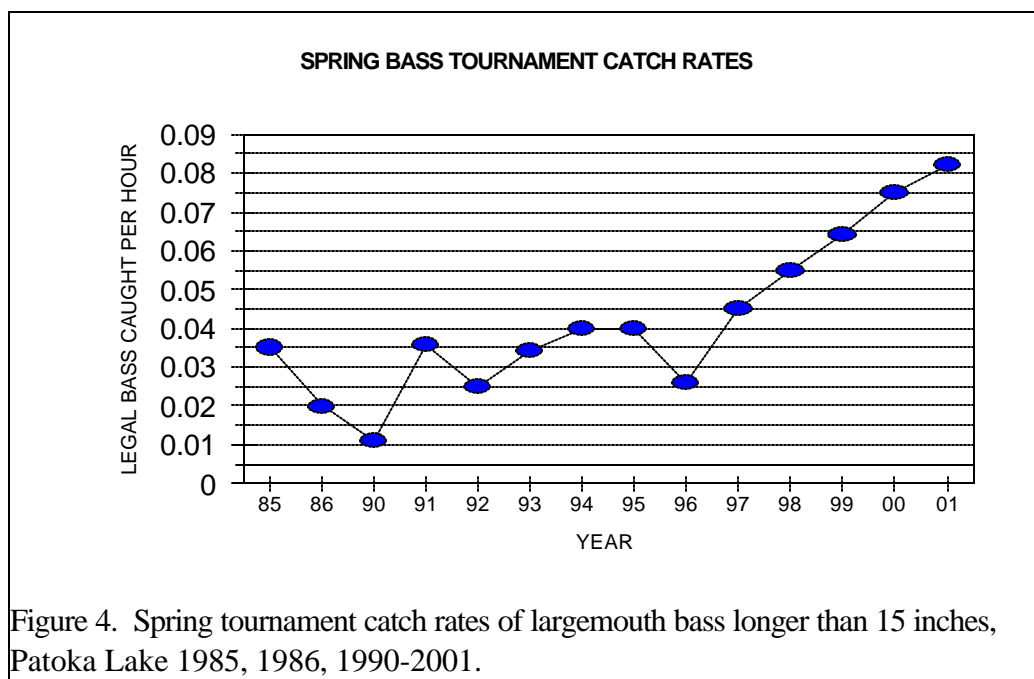
Table 7. Largemouth bass tournaments monitored at Patoka Lake, 2001.

<u>Date</u>	<u>Organization</u>
March 17	Patoka Valley Bassmasters
March 25	Jasper Bassmasters
April 1	Hoosier Open Inc.
April 8	Indiana Bass Federation Invitational
April 11	Indiana Senior Bass Tournaments
April 14	Discount Labels
May 5	Indiana Bass Federation-Zone 4
May 6	Indiana Bass Federation-Zone 4
June 16	Midwest Sportsman
July 14	Fishers of Men-Southern Division
August 12	Hoosier Open Inc.
September 8	Teamsters Local 135
September 9	Jasper Bassmasters

The number of 15 inch and longer bass caught in the eight spring tournaments was 1,106. The number of bass weighed in per tournament ranged from 26 to 291. Spring tournament catch rates ranged from 0.030 to 0.145 and averaged 0.082 legal bass per hour (Table 8). The average spring tournament catch rate in 2000 was 0.075 legal bass per hour. The 2001 spring catch rate was a record high (Figure 4).

Table 8. Length (inches) and catch rates of largemouth bass caught in spring tournaments, Patoka Lake 2001.

Length (inches)	Tournament Dates								Totals	Percent by length
	3/17	3/25	4/1	4/8	4/11	4/14	5/5	5/6		
15.0	8	13	34	60	24	7	30	25	201	18.2
15.5	9	14	33	28	19	3	36	24	166	15.0
16.0	10	13	30	86	17	4	41	43	244	22.1
16.5	8	18	18	35	15	3	22	14	133	12.0
17.0	6	15	17	54	9	1	32	24	158	14.3
17.5	6	9	10	12	3	2	18	7	67	6.1
18.0	6	9	7	1	6	5	10	4	48	4.3
18.5	4	5	7	4	2		9	2	33	3.0
19.0	3	2	2	7	7	1	2	1	25	2.3
19.5		2	1	3			3	4	13	1.2
20.0				1			2	3	6	0.5
20.5			1						1	0.1
21.0	1						1	1	3	0.3
21.5		1			1		3	2	7	0.6
22.0					1				1	0.1
Number of bass caught	61	101	160	291	104	26	209	154	1,106	
Number of anglers	164	280	356	274	102	125	144	144	1,589	
Tournament length (hrs)	8	8	9	9	8	7	10	8		
Catch rate (#/hour)	0.046	0.045	0.050	0.118	0.127	0.030	0.145	0.134	0.082	
Weight of big bass (lbs)	6.88	6.30	8.02	5.60	5.40	4.01	4.90	4.40		



Eighty-seven percent of the 2001 spring tournament bass ranged between 15 and 17.5 inches, 11% between 18 and 19.5 inches, and 2% greater than 20 inches (Figure 5). Big bass weighed in ranged between 4.01 to 8.02 pounds and averaged 5.68 pounds. The average length of the bass weighed in was 16.4 inches.

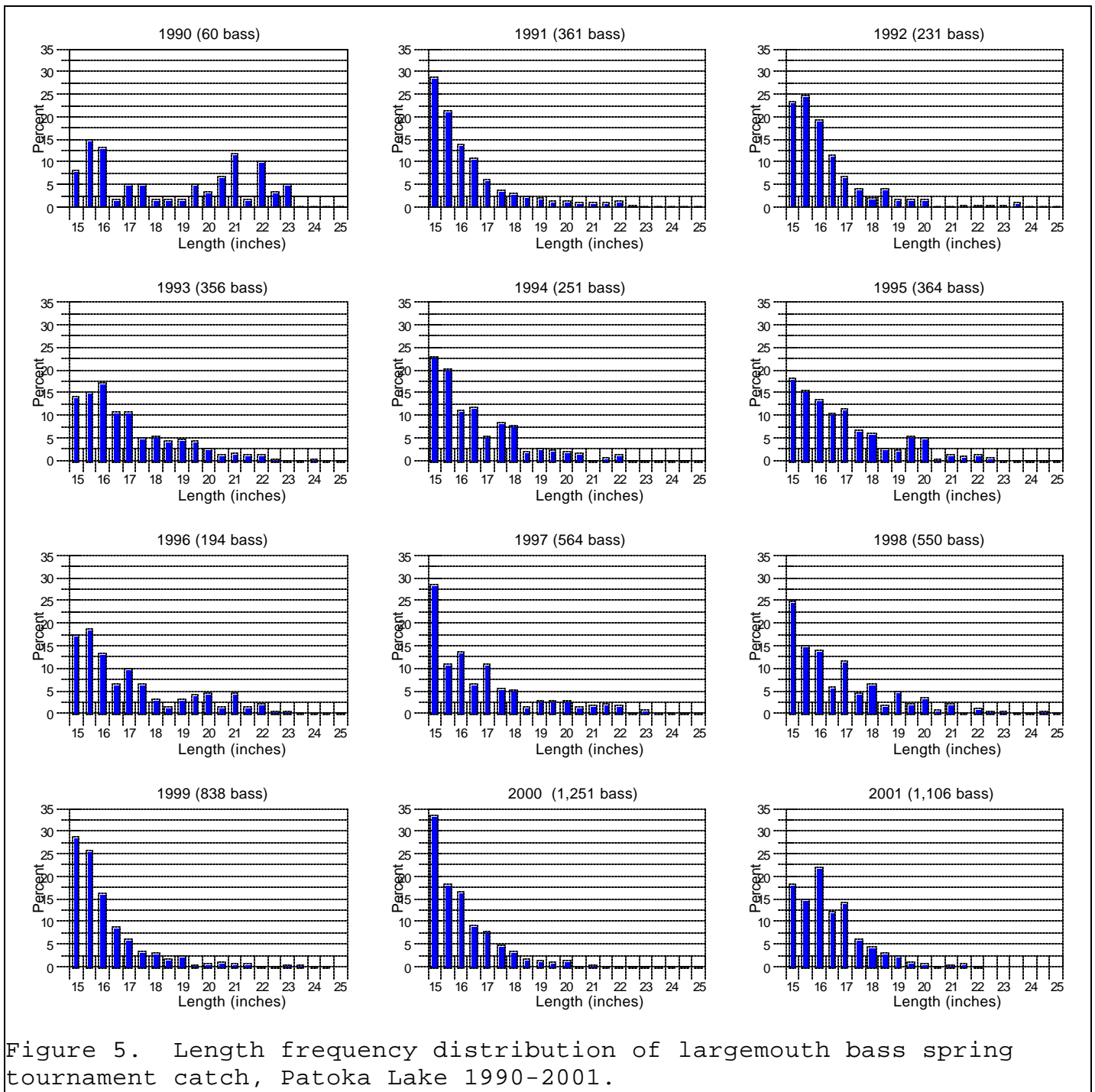


Figure 5. Length frequency distribution of largemouth bass spring tournament catch, Patoka Lake 1990-2001.

The summer tournaments had an average catch rate of 0.060 legal bass per hour (Table 9), while the fall tournaments had an average catch rate of 0.066 (Table 10). Catch by length results were similar to the spring tournaments results. The average length of the weighed in bass was 16.1 inches for summer tournaments and 16.2 inches for the fall tournaments.

Table 9. Length (inches) and catch rates of largemouth bass caught in summer tournaments, Patoka Lake 2001.

Length (inches)	Tournament Dates			Totals	Percent by length
	6/16	7/14	8/12		
15.0	4	5	28	37	22.3
15.5	1	7	27	35	21.1
16.0	2	8	19	29	17.5
16.5		7	13	20	12.0
17.0	3	12	9	24	14.5
17.5		1	7	8	4.8
18.0		4	1	5	3.0
18.5	2	1		3	1.8
19.0	4			4	2.4
19.5				0	0.0
20.0	1			1	0.6
Number of bass caught	17	45	104	166	
Number of anglers	20	58	226	304	
Tournament length (hrs)	8	8	9.5		
Catch rate (#/hour)	0.106	0.097	0.048	0.060	
Weight of big bass (lbs)	3.42	3.53	4.06		

Table 10. Length (inches) and catch rates of largemouth bass caught in fall tournaments, Patoka Lake 2001.

Length (inches)	Tournament Dates			Totals	Percent by length
	9/8	9/9			
15.0	15	27		42	19.9
15.5	18	33		51	24.2
16.0	9	18		27	12.8
16.5	2	20		22	10.4
17.0	1	26		27	12.8
17.5	1	16		17	8.1
18.0		14		14	6.6
18.5		4		4	1.9
19.0		4		4	1.9
19.5		1		1	0.5
20.0				0	0.0
20.5		2		2	0.9
Number of bass caught	46	165		211	
Number of anglers	188	224		412	
Tournament length (hrs)	7.5	8			
Catch rate (#/hour)	0.033	0.092		0.066	
Weight of big bass (lbs)	6.85	5.59			

Figure 5. Length frequency distribution of largemouth bass spring tournament catch, Patoka Lake 1990-2001.

STRIPED BASS FALL INDEXING SURVEY

Patoka Lake received its first striped bass stocking on June 26, 1997. A total of 412,475 fingerlings have been stocked from 1997 through 2001. No striped bass fingerlings were stocked in 2000.

Only one striped bass was sampled during the fall indexing. It was 5.2 inches long. The low catch rate was probably due to the massive weed beds located in the sampling locations and not that the stocked fish did not survive. These fish should show up in the 2002 standard fisheries survey if they survived.

Smallmouth bass were also sampled during this fall indexing at one station. Ten were sampled in 15 minutes of night electrofishing that ranged in length from 4.7 to 13.7 inches. Their back calculated growth rates at ages 1, 2, and 3 were 4.1, 7.8, and 10.2 inches respectively (Appendix).

CONCLUSIONS

Best fishing at Patoka Lake in 2001 was for largemouth bass. Since this was a modified fisheries survey nets were not used. Due to this, not many channel catfish, striped bass, and crappie were sampled. Fishing for these three species was good in 2000 and should have been good in 2001. The bluegill fishing was considered marginal with a Bluegill Fishing Potential Index score of 11 out of a possible 40 (Ball and Tousignant 1996).

The largemouth bass population size structure improved over the last few years. The 2001 bass PSD index value was 40. This indicates that there are larger fish in the population, in combination with the appropriate number of smaller bass which should grow into the larger size classes. A major improvement was in the bass electrofishing catch rates. The overall catch rate increased from 124 per hour in 2000 to 194 in 2001. Also, the electrofishing catch rate for bass longer than 15 inches increased from 11 per hour in 2000 to 31 in 2001. An electrofishing catch rate of 31 per hour for legal size bass indicates that bass fishing is very good. The catch rate for 12 to 15 inch bass also substantially increased from 2000. Most of these fish will be longer than 15 inches in 2002 if current growth rates remain the same. The problem with the bass population in the past has been poor survival of young-of-the-year (YOY) bass to older size classes. This may be improving due to the combination of an abundant forage base of longear sunfish, stunted bluegill, steelcolor shiner, and bluntnose minnow, and stabilized water levels over the last two years.

Another indication that the bass fishing has improved was the increased catch rates at bass tournaments. Bass tournament catch rates for bass longer than 15 inches increased for the fifth straight year. The catch rate of legal size bass being weighed in at the tournaments has more than tripled since 1996.

Bluegill fishing remains marginal at the lake. The PSD index value changed little from 5 in 2000 to 7 in 2001. The RSD7 index value decreased to less than 1 and bluegill growth rates declined from

last year. It appears that the bluegill are stunting out at 6 to 6.5 inches in length. This would account for the increase in the PSD value since the bluegill quality size is 6 inches in the PSD equation. A five year old bluegill now averages 6.3 inches long. In 1996, a five year old bluegill averaged 8.8 inches in length.

Fisheries work planned for Patoka Lake in the future will include standard fish management surveys in 2002 and 2004, electrofishing surveys in 2003 and 2005, YOY striped bass fall indexing in every year that striped bass are stocked, largemouth bass tournament monitoring in 2002 through 2005, specialized crappie sampling in 2002 and 2003, and an angler creel survey in and 2003.

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APPENDIX

Fisheries Management Survey Data